PROCESS FLOW DIAGRAMS AND P&ID SYMBOLS (GENERAL INSTRUMENT OR FUNCTION SYMBOLS)

REVISION 1, DATE 8-16-2004

LINE TYPES

SYMBOL	LINE TYPE	DESCRIPTION
	CONTINUOUS	PRIMARY PROCESS FLOW LINE
	CONTINUOUS	SECONDARY PROCESS FLOW LINE
	CONTINUOUS	INSTRUMENT SUPPLY OR CONNECTION TO PROCESS
	CONTINUOUS	UNDEFINED SIGNAL
	CONTINUOUS	PNEUMATIC SIGNAL *
	HIDDEN#2	ELECTRIC SIGNAL
	CONTINUOUS	HYDRAULIC SIGNAL
	CONTINUOUS	CAPILLARY TUBE
	CONTINUOUS	ELECTROMAGNETIC OR SONIC SIGNAL ** (GUIDED)
	CONTINUOUS	ELECTROMAGNETIC OR SONIC SIGNAL ** (NOT GUIDED)
	CONTINUOUS	INTERNAL SYSTEM LINK (SOFTWARE OR DATA LINK
	CONTINUOUS	MECHANICAL LINK
OPTIONAL BINARY (ON-OFF) SYMBOLS		
	CONTINUOUS	PNEUMATIC BINARY SIGNAL
	DASHED2	ELECTRIC BINARY SIGNAL
	CONTINUOUS	ELECTRICAL HEAT TRACING
	CONTINUOUS/DASHED2	STEAM HEAT TRACING
	DASHED2	BURIED LINES
	PHANTOM	EXISTING
XX	CENTER	FP - FLOOR PENETRATION RP - ROOF PENETRATION WP - WALL PENETRATION SB - SYSTEM BREAK

NOTES:
"OR" MEANS USER CHOICE. CONSISTANCY IS RECOMMENDED.

* THE PNEUMATIC SIGNAL SYMBOL APPLIES TO A SIGNAL USING ANY GAS AS THE SIGNAL MEDIUM. IF GAS OTHER THAN AIR IS USED, THE GAS MAY BE IDENTIFIED BY A NOTE ON THE SIGNAL SYMBOL OR OTHERWISE.

** ELECTROMECHANIC PHENOMENA INCLUDE HEAT, RADIO WAVES, NUCLEAR RADIATION, AND LIGHT.

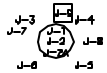
SYMBOL	DESCRIPTION
	P =PURGE OR FLUSHING DEVICE R =RESET FOR LATCH-TYPE ACTUATOR I =UNDEFINED INTERLOCK LOGIC
	S=SOLENOID D=DIGITAL P=PILOT T=TRAP M=MAGNETIC FLOWMETER SP=SET POINT
	ROOT EXTRACTION
	BIAS
	MULTIPLY
	HIGH SELECTING
	LOW SELECTING
	HIGH LIMITING
	LOW LIMITING
	PROPORTIONAL
	REVERSE PROPORTIONAL
	SUMMING
	DIVIDING
DA-1	EQUIPMENT TAG
X Y-#	PIPE OR WIRE IS CONTINUED ON DRAWING X (INCLUDING SHEET NUMBER), GRID COORDINATE (Y-#); FLOW IS TO THAT DRAWING.
X Y-#	PIPE OR WIRE IS CONTINUED ON DRAWING X (INCLUDING SHEET NUMBER), GRID COORDINATE (Y-#); FLOW IS FROM THAT DRAWING.
X Y-#	PIPE OR WIRE IS CONTINUED ON DRAWING X (INCLUDING SHEET NUMBER), GRID COORDINATE (Y-#); FLOW IS IN BOTH DIRECTIONS

INSTRUMENT/FUNCTION SYMBOLS

	PRIMARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY LOCATION NORMALLY ACCESSIBLE TO OPERATOR	AUXILIARY LOCATION NORMALLY INACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A
SHARED DISPLAY, SHARED CONTROL	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A
COMPUTER FUNCTION	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A
PROGRAMMABLE LOGIC CONTROL	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A	J1 J2 J2A

SYMBOL	DESCRIPTION
	FLOW INDICATOR TO BE USED IN CONJUNCTION WITH P016
J1 J2 J2A J1 J2 J2A	INSTRUMENTS SHARING COMMON HOUSING
J1 J2 J2A	PANEL MOUNTED PATCHBOARD POINT 12

INSTRUMENTATION IDENTIFICATION TABLE



J-1 COMPONENT FUNCTION NUMBER
J-2 COMPONENT SEQUENCE NUMBER
J-2A COMPONENT SEQUENCE # CONT'D
J-3 VENDOR DESIGNATION
J-4 PANEL NUMBER
J-5 APPLICABLE NOTES
J-6 SYSTEM ACRONYM
J-7 ASME TEST SYMBOL FOR TEST ONLY OR TEST PLUS NORMAL USE
J-8 SET-POINT(S)
J-9 FUNCTION (SEE INSTRUMENT/FUNCTION SYMBOLS)

NOTE:
INSTRUMENTATION FUNCTION IDENTIFIERS (J-1) AND FUNCTION SYMBOLS PER ANSI/ISA S5.1.

ACRONYMS

EQUIPMENT

AHU - AIR HANDLING UNIT
ABV - AIR SWITCH VALVE
CA - AIR COMPRESSOR
CAE - COOLER, AIR EVAPORATIVE
D - DAMPER
DAD - DESICCANT AIR DRYER
DAMD - DUCT AIR MONITOR DEVICE
ES - EXHAUST STACK
FAB - FILTER AIR BOX
FANE - FAN EVALUATOR
FAR - FILTER AIR REPLACEABLE
FC - FAN CIRCULATING
FD - FIRE DAMPER
FE - FAN EXHAUST
FRA - FAN, RETURN AIR
FRL - FILTER AIR ROLL
FS - FAN SUPPLY
HEPA - HIGH EFFICIENCY PARTICULATE AIR FILTER
HX - HEAT EXCHANGER
MT - MOISTURE TRAP
OIM - OPERATOR INTERFACE MODULE
SST - SYSTEM STATIC TOTALIZER
TCA - TANK COMPRESSED AIR
TK - TANK
T - TRAP
V - VALVE
VFD - VARIABLE FREQUENCY DRIVE/MOTOR CONTROLLER
YB - PLC CONTROL OUTPUT

MINOR EQUIPMENT

OPEN DRAIN ANNOTATIONS
RD - RADIOACTIVE DRAIN TO DRAIN HEADER
ND - NONRADIOACTIVE DRAIN
AW - ACID WASTE
NW - NORMAL WASTE
OW - OIL WASTE
SW - SANITARY WASTE

LINE VALVE STATUS SYMBOLS

TYPICAL VALVE ANNOTATIONS

FO - FAIL OPEN
FC - FAIL CLOSED
FL - FAIL LOCKED (POSITION DOES NOT CHANGE)
FI - FAIL INDETERMINATE
FAI - FAIL AS IS
NO - NORMALLY OPEN
NC - NORMALLY CLOSED
LO - LOCKED OPEN
LC - LOCKED CLOSED

MISCELLANOUS ACRONYMS

WP - WALL PENETRATION
FP - FLOOR PENETRATION
RP - ROOF PENETRATION
AO - ANALOG OUTPUT
AI - ANALOG INPUT
DI - DIGITAL INPUT
RO - RELAY OUTPUT

GENERAL NOTES

1. M-0001 IS A STANDARD PIPING AND INSTRUMENTATION DIAGRAM LEGEND SHEET.
2. FOR DRAWING TITLE BLOCK CONTENTS REFER TO THE DRAFTING MANUAL SECTION 202.10.
3. THE SHEET NUMBER IN THE TITLE BLOCK IS A REFERENCE NUMBER FOR THIS MANUAL.

NO	DATE	CLASS REV	ACK	DESCRIPTION	DWN	DSGN	CHKD	SUB	APP

FACILITY & WASTE OPERATIONS
DESIGN ENGINEERING CONSTRUCTION SERVICES

PROCESS FLOW DIAGRAMS AND P&ID SYMBOLS

PROCESS FLOW AND P&ID AND INSTRUMENTATION DIAGRAM LEGEND

DRAWN	DRAFTER
DESIGN	DESIGN(A)
CHECKED	CHECKER
DATE	MM-DD-YY

BLDG XX TA-XX

SUBMITTED
PROJECT ENGINEER
APPROVED FOR RELEASE
PROJECT TEAM LEADER

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SHEET M-0001
X OF X

CLASSIFICATION UNCL
REVIEWER LUREY EDITS
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REV 1